What is claimed is:

1. An isolated DNAc molecule comprising a promoter P and an L1 cassette sequence comprising a core L1 retrotransposon element.

2. The isolated DNAc molecule of claim 1, wherein said core L1 retrotransposon element comprises a 5' UTR, ORF1, ORF2 comprising EN and RT domains, a 3' UTR, a poly A signal, and a vector sequence comprising at least one origin of DNA replication and a DNA sequence encoding at least one selectable marker protein.

3. The isolated DNAc molecule of claim 1, wherein said promoter P is an RNA pol III promoter or an RNA pol II promoter, said RNA pol II promoter being selected from the group consisting of a constitutive promoter, an inducible promoter, a tissue-specific promoter and a viral promoter.

4. The isolated DNAc molecule of claim 1, wherein said origin of DNA replication is a eukaryotic origin of DNA replication.

5. The isolated DNAc molecule of claim 4, wherein said eukaryotic origin of DNA replication is selected from the group consisting of a viral origin of DNA replication, a yeast origin of DNA replication and a mammalian artificial chromosome.

6. The isolated DNAc molecule of claim 4, further comprising a prokaryotic origin of DNA replication.

7. The isolated DNAc molecule of claim 6, wherein said prokaryotic origin of DNA replication is selected from the group consisting of a ColEI and a pA15 origin of DNA replication.

8. The isolated DNAc molecule of claim 2, wherein said selectable marker protein is a first marker protein selected from the group consisting of neomycin resistance protein, green fluorescent protein, β-galactosidase, and a prokaryotic antibiotic resistance protein.

9. The isolated DNAc molecule of claim 2, further comprising a fragment of non-L1 DNA and a promoter P' for expression of said non-L1 DNA, wherein said non-L1 DNA and promoter P' are positioned within said 3' UTR or between said 3' UTR and said poly A signal.

10. The isolated DNAc molecule of claim 9, wherein said non-L1 DNA comprises DNA encoding a second marker protein.

11. The isolated DNAc molecule of claim 10, wherein said second marker protein is selected from the group consisting of neomycin resistance protein, green fluorescent protein, β-galactosidase, herpes simplex virus thymidine kinase and a eukaryotic cell surface protein.

12. The isolated DNAc molecule of claim 9, wherein said non-L1 DNA comprises DNA encoding a protein capable of correcting a genetic defect in a cell.

13. The isolated DNAc molecule of claim 12, wherein said protein is selected from the group consisting of cystic fibrosis transmembrane conductance regulator, β-globin, an enzyme, a tumor suppressor protein and a cytokine.

14. The isolated DNAc molecule of claim 9, wherein said non-L1 DNA comprises tag DNA.

15. The isolated DNAc molecule of claim 9, wherein said promoter P is an RNA pol III promoter or an RNA pol II promoter, said RNA pol II promoter being selected from the group consisting of a constitutive promoter, an inducible promoter, a tissue-specific promoter and a viral promoter.

16. The isolated DNAc molecule of claim 9, wherein said promoter P' is an RNA pol III promoter or an RNA pol II promoter selected from the group consisting of a constitutive promoter, an inducible promoter, a tissue-specific promoter and a viral promoter.

17. The isolated DNAc molecule of claim 9, wherein said origin of DNA replication is a eukaryotic origin of DNA replication.

18. The isolated DNAc molecule of claim 17, wherein said eukaryotic origin of DNA replication is selected from the group consisting of a viral origin of DNA replication, a yeast origin of DNA replication and a mammalian artificial chromosome.

19. The isolated DNAc molecule of claim 17, further comprising a prokaryotic origin of DNA replication.

20. The isolated DNAc molecule of claim 19, wherein said prokaryotic origin of DNA replication is selected from the group consisting of a ColEI and a pA15 origin of DNA replication.

21. An isolated DNAc molecule comprising a promoter P and an L1 cassette sequence comprising a core L1 retrotransposon element, said core L1 retrotransposon element comprising a 5' UTR, ORF1, ORF2 comprising EN and RT domains, a 3' UTR, a poly A signal, a fragment of non-L1 DNA, a promoter P' for expression of said non-L1 DNA, and a vector sequence comprising two origins of DNA replication and a DNA sequence encoding at least one selectable marker protein, wherein said promoter P comprises the cytomegalovirus immediate early promoter, wherein said non-L1 DNA comprises the neomycin resistance gene, and wherein one of said origins of DNA replication comprises the Epstein Barr virus origin of DNA replication and another of said origins of DNA replication comprises the ColE1 origin of DNA replication.

22. A method of generating a cell mutant comprising transfecting a cell with an isolated DNAc molecule comprising a promoter P and an L1 cassette sequence comprising a core L1 retrotransposon element to effect integration of said core L1 retrotransposon element sequence into the genome of said cell thereby generating said cell mutant.

23. A method of generating a library of cell mutants comprising transfecting a population of cells with an isolated DNAc molecule comprising a promoter P and an L1 cassette sequence comprising a core L1 retrotransposon element to effect random integration of said core L1 retrotransposon element independently into the genome of at least two of the cells in said cell population thereby generating a library of cell mutants.

24. The method of claim 23, wherein said core L1 retrotransposon element comprises non-L1 DNA suitable for PCR.

25. A method of isolating a host cell DNA fragment from a cell comprising

transfecting said cell with an isolated DNAc molecule comprising a promoter P and an L1 cassette sequence comprising a core L1 retrotransposon element comprising non-L1 DNA, to effect random integration of said core L1 retrotransposon element into the genome of said cell,

performing PCR on integrated non-L1 DNA to amplify DNA flanking said non-L1 DNA, which flanking DNA comprises a host cell DNA fragment and, isolating said host cell DNA fragment so amplified.

26. A method of delivering a gene to a cell comprising transfecting said cell with an isolated DNAc molecule comprising a promoter P and an L1 cassette sequence comprising a core L1 retrotransposon element comprising non-L1 DNA and a promoter P' for expression of said non-L1 DNA, wherein said non-L1 DNA comprises a gene.

27. The method of claim 26, wherein said non-L1 DNA encodes a protein capable of correcting a genetic defect in a cell and wherein expression of said protein in said cell corrects said genetic defect.

28. The method of claim 27, wherein said cell is obtained from an animal prior to transfection and is returned to said animal following transfection.

29. A method of delivering a gene to a cell in an animal comprising administering to said animal an isolated DNAc molecule comprising a promoter P and an L1 cassette sequence comprising a core L1 retrotransposon element comprising non-L1 DNA and a promoter P' for expression of said non-L1 DNA, wherein said non-L1 DNA comprises a gene.

30. The method of claim 29, wherein said non-L1 DNA encodes a protein capable of correcting a genetic defect in said animal and wherein expression of said protein in said cell corrects said genetic defect in said animal.

31. The method of claim 30, wherein said protein is selected from the group consisting of cystic fibrosis transmembrane conductance regulator, β-globin, a blood clotting protein, an enzyme, a tumor suppressor protein and a cytokine.

32. A method of assessing the mutagenic potential of an animal comprising

obtaining a population of cells from said animal,

transfecting said cells with an isolated DNAc molecule comprising a promoter P and an L1 cassette sequence comprising a core L1 retrotransposon element comprising non-L1 DNA comprising a marker gene, and

assessing the frequency of retrotransposition in said cells as a measure of the mutagenic potential of said animal, the frequency of retrotransposition being directly proportional to the mutagenic potential in said animal.

33. A method of identifying an anti-mutagenic compound comprising

transfecting a population of cells, in the presence or absence of a test compound, with an isolated DNAc molecule comprising a promoter P and an L1 cassette sequence comprising a core L1 retrotransposon element comprising non-L1 DNA, and

assessing the frequency of retrotransposition in said cells, wherein a lower frequency of retrotransposition in said cells in the presence of said test compound, compared with the frequency of retrotransposition in the absence of said test compound, is an indication that said test compound is an anti-mutagenic compound.